

CLAIM AMENDMENTS

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-18. **(Cancelled).**

19. (Previously Presented) A method for binding nucleic acids to a surface, the method comprising:

providing a mixture comprising nucleic acids and a charged material comprising a xanthine compound; and

contacting the mixture and a surface to produce a bound material, wherein the bound material comprises nucleic acids covalently bonded to the surface.

20-25. **(Cancelled).**

26. (Original) The method of claim 19, wherein the surface consists essentially of silica.

27. (Original) The method of claim 19, wherein the surface consists of silica.

28. (Original) The method of claim 19, further comprising removing the charged material after the contacting step.

29. **(New) The method of Claim 19, wherein the nucleic acids comprise DNA.**

30. **(New) The method of Claim 19, wherein the surface is flat.**

31. **(New) The method of Claim 19, wherein the surface is a bead.**

32. **(New) The method of Claim 19, wherein the surface comprises an array of fibers.**

33. (New) The method of Claim 19, wherein the surface comprises at least 80% pure silicon dioxide.

34. (New) The method of Claim 19, wherein the surface comprises at least 90% pure silicon dioxide.

35. (New) The method of Claim 19, wherein the surface comprises at least 95% pure silicon dioxide.

36. (New) The method of Claim 19, wherein the surface comprises pure silicon dioxide.

37. (New) The method of Claim 19, further comprising the xanthine compound selected from the group consisting of: 3,7-trimethylxanthine (caffeine), 1,3,9-trimethylxanthine, 1,3-diethyl-7-methylxanthine, 1,3-diethyl-8-phenylxanthine, 1,3-dimethyl-7-(2-hydroxyethyl)xanthine, 1,3-dimethylxanthine-7-acetic acid, 1,3-dipropyl-7-methylxanthine, 1,3-dipropyl-8-*p*-sulfophenylxanthine, 1,7-dimethylxanthine, 1,7-dimethylxanthine (paraxanthine), 1,9-dimethylxanthine, 1-allyl-3,7-dimethyl-8-phenylxanthine, 1-allyl-3,7-dimethyl-8-*p*-sulfophenylxanthine, 1-butyl-4,5-dihydro-3-ethyl-8-hydroxyxanthine, 1-ethyl-3-isobutylxanthine, 1-methylxanthine, 2,6-dithiopurine, 2'-deoxyinosine, 3,7-dimethyl-1-propargylxanthine, 3,7-dimethylxanthine, 3,8-dimethyl-2-thioxanthine, 3,9-dimethylxanthine, 3-allyl-1-ethyl-8-hydroxyxanthine, 3-cyclopropyl-1-ethyl-8-hydroxyxanthine, 3-ethyl-1-propylxanthine, 3-ethyl-8-hydroxy-1-methylxanthine, 3-isobutyl-1-methylxanthine, 3-isobutyl-1-methylxanthine, 3-isobutyl-1-methylxanthine, 3-methyl-1-(5-oxohexyl)-7-propylxanthine, 3-methyl-8-phenyl-2-thiohypoxanthine, 3-methylxanthine, 3-propylxanthine, 6-thiohypoxanthine, 6-thioxanthine, 7-methylxanthine, 8-(3-carboxypropyl)-1,3-dimethylxanthine, 8-azaxanthine monohydrate, 8-bromo-1,3-diethylxanthine, 8-cyclopentyl-1,3-dimethylxanthine, 8-cyclopentyl-1,3-dipropylxanthine, 8-methoxymethyl-3-isobutyl-1-methylxanthine, 8-methylxanthine, 9-methylxanthine, azaserine-hypoxanthine, hypoxanthine, hypoxanthine 9-beta-d-arabinofuranoside, hypoxanthine 9-d-ribofuranoside (inosine), nicotinamide

hypoxanthine dinucleotide phosphate, nicotinamide hypoxanthine dinucleotide phosphate disodium salt, nicotinamide hypoxanthine dinucleotide sodium salt, selenohypoxanthine, xanthosine, and any combination thereof.

38. (New) A method for binding DNA to a surface comprising silica, the method comprising:

providing a mixture comprising DNA and a charged material comprising a xanthine compound; and

contacting the mixture and a surface comprising silica to produce a bound material, wherein the bound material comprises DNA covalently bonded to the surface comprising silica.

39. (New) The method of Claim 38, further comprising removing the charged material after the contacting step.

40. (New) The method of Claim 38, wherein the surface is flat.

41. (New) The method of Claim 38, wherein the surface is a bead.

42. (New) The method of Claim 38, wherein the surface comprises an array of fibers.

43. (New) The method of Claim 38, further comprising the xanthine compound selected from the group consisting of: 3,7-trimethylxanthine (caffeine), 1,3,9-trimethylxanthine, 1,3-diethyl-7-methylxanthine, 1,3-diethyl-8-phenylxanthine, 1,3-dimethyl-7-(2-hydroxyethyl)xanthine, 1,3-dimethylxanthine-7-acetic acid, 1,3-dipropyl-7-methylxanthine, 1,3-dipropyl-8-*p*-sulfophenylxanthine, 1,7-dimethylxanthine, 1,7-dimethylxanthine (paraxanthine), 1,9-dimethylxanthine, 1-allyl-3,7-dimethyl-8-phenylxanthine, 1-allyl-3,7-dimethyl-8-*p*-sulfophenylxanthine, 1-butyl-4,5-dihydro-3-ethyl-8-hydroxyxanthine, 1-ethyl-3-isobutylxanthine, 1-methylxanthine, 2,6-dithiopurine, 2'-deoxyinosine, 3,7-dimethyl-1-propargylxanthine, 3,7-dimethylxanthine, 3,8-dimethyl-2-thioxanthine, 3,9-dimethylxanthine, 3-allyl-1-ethyl-8-hydroxyxanthine,

3-cyclopropyl-1-ethyl-8-hydroxyxanthine, 3-ethyl-1-propylxanthine, 3-ethyl-8-hydroxy-1-methylxanthine, 3-isobutyl-1-methylxanthine, 3-isobutyl-1-methylxanthine, 3-isobutyl-1-methylxanthine, 3-methyl-1-(5-oxohexyl)-7-propylxanthine, 3-methyl-8-phenyl-2-thiohypoxanthine, 3-methylxanthine, 3-propylxanthine, 6-thiohypoxanthine, 6-thioxanthine, 7-methylxanthine, 8-(3-carboxypropyl)-1,3-dimethylxanthine, 8-azaxanthine monohydrate, 8-bromo-1,3-diethylxanthine, 8-cyclopentyl-1,3-dimethylxanthine, 8-cyclopentyl-1,3-dipropylxanthine, 8-methoxymethyl-3-isobutyl-1-methylxanthine, 8-methylxanthine, 9-methylxanthine, azaserine-hypoxanthine, hypoxanthine, hypoxanthine 9-beta-d-arabinofuranoside, hypoxanthine 9-d-ribofuranoside (inosine), nicotinamide hypoxanthine dinucleotide phosphate, nicotinamide hypoxanthine dinucleotide phosphate disodium salt, nicotinamide hypoxanthine dinucleotide sodium salt, selenohypoxanthine, xanthosine, and any combination thereof.